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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/587,542

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Michael G. Luby

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05/22/2006

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EXAMINER

BOUTAH, ALINA A

ART UNIT

PAPER NUMBER

2143

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/587,542	LUDY, MICHAEL G.	
	Examiner	Art Unit	
	Alina N Boutah	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This action is in response to Applicant's amendment filed February 21, 2006. Claims 1-12 are pending in the present application.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 21, 2006 has been entered.

Claim Rejections - 35 USC § 112

In view of Applicant's response dated February 21, 2006, the 112 rejection is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over “*TCP-like Congestion Control for Layered Multicast Data Transfer*” by Vicisano, Crowcroft, and Rizzo (hereinafter referred to as Vicisano) in view of USPN 6,505,253 issued to Chiu et al. (hereinafter referred to as Chiu).

Regarding claim 1, Vicisano teaches in a network supporting packet multicasting from a sender into the network, where hosts join and leave a multicast group by sending join and leave messages, respectively, to an access device in the network, an improvement comprising:

a plurality of layers, wherein a layer is a logical channel that carries packets for the multicast group (figure 1);

logic for distributing multicast traffic from the sender over the plurality of layers according to a sending rate associated with each of the plurality of layers (page 996, Introduction; page 997, Layered organization of data);

logic for accepting join and leave messages at the access device from the hosts, wherein the join and leave messages are associated with one or more layers of the plurality of layers (page 996, Introduction; page 997, Multicast group membership, page 998, Congestion Control for multicast layered data); and the sender being independent of receiver’s feedback (Abstract; page 998: Sender-initiated probes).

However, Vicisano does not explicitly teach logic for reducing the sending rate of at least one of the plurality of layers over time. Chiu teaches reducing a sending rate of a layer over time (col. 9, lines 47-60; col. 12, lines 51-56; col. 22, lines 28-30; col. 24, lines 61-64). At the time the invention was made, one of ordinary skill in the art would have been motivated to reduce the

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sending rate of sending rate of one of the plurality of layers overtime in order to allow the host to adjust itself to an optimum rate for its network (col. 9, lines 50-53).

Regarding claim 2, Vicisano teaches the network of claim 1 further comprising logic for raising the sending rate of an unused layer (page 996, Introduction; page 997, Multicast group membership, page 998, Congestion Control for multicast layered data; page 998, Congestion Control for multicast layered data).

Regarding claim 3, Vicisano teaches in a network supporting packet multicasting form a sender into the network, where hosts join and leave a multicast group by sending join and leave messages, respectively, to an access device in the network, a method comprising the steps of:

accepting multicast join messages at the access device, wherein a join message indicates that a host beyond an interface to the access device requests membership in a layer, where a layer is a logical channel over which packets are multicast to hosts that are members to a multicast group for the layer (page 996, Introduction; page 997, Layered organization of data);

transmitting multicast packets to a plurality of layers, wherein multicast packets are transmitted by the sender on a given layer at a rate approximately equal to a sending rate associated with the layer (page 996, Introduction; page 997, Layered organization of data);

accepting multicast leave messages at an access device from hosts, wherein a leave message indicates that a host requests removal from a layer indicated in the leave message (page 996, Introduction; page 997, Multicast group membership, page 998, Congestion Control for

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multicast layered data); and the sender being independent of receiver's feedback (Abstract; page 998: Sender-initiated probes).

However, Vicisano does not explicitly teach reducing the sending rates for each of the layers over time. Chiu teaches reducing a sending rate of a layer over time (col. 9, lines 47-60; col. 12, lines 51-56; col. 22, lines 28-30; col. 24, lines 61-64). At the time the invention was made, one of ordinary skill in the art would have been motivated to reduce the sending rate of sending rate of one of the plurality of layers overtime in order to allow the host to adjust itself to an optimum rate for its network (col. 9, lines 50-53).

Regarding claim 4, Vicisano teaches the method of claim 3, further comprising a step of offsetting a reduced reception rate at a host due to a reduced sending rate for each of the layers by the host joining one or more additional layers, if a reception rate at the host is to be maintained (pages 996-996, Relation between throughput and loss rate, page 998, Congestion Control for multicast layered data).

Regarding claim 5, Vicisano teaches the method of claim 3, wherein the step of reducing the sending rates includes reducing the sending rate for a selected one of the layers to zero (figure 3).

Regarding claim 6, Vicisano the method of claim 5, further comprising a step of increasing the sending rate for the selected one of the layers after an idle period has elapsed (figure 3).

Regarding claim 7, Vicisano teaches the method of claim 6, wherein the idle period is longer than leave latency associated with the access device responding to a leave message (page 996, Introduction; page 997, Layered organization of data).

Regarding claim 8, Vicisano teaches in a network supporting packet multicasting form a sender into the network, where hosts join and leave a multicast group by sending join and leave messages, respectively, to an access device in the network, a method comprising the steps of:

transmitting multicast packets to a plurality of dynamic layers at a rate approximately equal to an aggregate sending rate (page 996, Introduction; page 997, Layered organization of data); and

concurrently with the step of reducing, increasing a sending rate of at least one other of the plurality of dynamic layers, thereby maintaining the aggregate sending rate for the plurality of dynamic layers (pages 996-998, Relation between throughput and loss rate, page 998, Congestion Control for multicast layered data); and the sender being independent of receiver's feedback (Abstract; page 998: Sender-initiated probes).

However, Vicisano does not explicitly teach reducing the sending rates for each of the layers over time. Chiu teaches reducing a sending rate of a layer over time (col. 9, lines 47-60; col. 12, lines 51-56; col. 22, lines 28-30; col. 24, lines 61-64). At the time the invention was made, one of ordinary skill in the art would have been motivated to reduce the sending rate of sending rate of one of the plurality of layers overtime in order to allow the host to adjust itself to an optimum rate for its network (col. 9, lines 50-53).

Regarding claim 9, Vicisano teaches the method of claim 8, wherein a host connected to the network is able to maintain a reception rate over time by joining the at least one other dynamic layer (page 997, Multicast group membership, second paragraph).

Regarding claim 10, Vicisano teaches the improvement of claim 1, wherein the logic for accepting join and leave messages receives join messages from hosts attempting to maintain a reception rate at the host whereby the host joins one or more additional layers to maintain the reception rate and offset reduced reception rates at a host due to a reduced sending rates for each of the layers (Introduction; page 997, Multicast group membership, second paragraph).

Regarding claim 11, Vicisano teaches the improvement of claim 1, wherein the logic for reducing the sending rate operates to reduce the sending rate of at least one of the plurality of layers independent of congestion (Introduction).

Regarding claim 12, Vicisano teaches the improvement of claim 1, wherein the logic for accepting join and leave messages receives messages from hosts attempting to maintain a reception rate at the host whereby the host joins one or more additional layers to maintain the reception rate and wherein the logic for reducing the sending rate operates to reduce the sending rate of at least one of the plurality of layers independent of congestion (Introduction).

Response to Arguments

Applicant's arguments filed February 21, 2006 have been fully considered but they are not persuasive.

In response to Applicant's argument that Chiu does not teach or suggest changing the sending rate of any layer over time, as cited above, this was taught in (col. 9, lines 47-60; col. 12, lines 51-56; col. 22, lines 28-30; col. 24, lines 61-64) of Chiu.

In response to Applicant's argument that Chiu does not teach that a sending rate is reduced independent of receiver feedback, the PTO respectfully submits that this is taught by the combination of Vicisano and Chiu. Specially, the abstract of Vicisano discloses a congestion control algorithm that requires no per-receiver status at the sender in order to scale to large numbers of receivers. Page 998, under section B "Sender-initiated probes" of Vicisano discloses a sender generating short bursts of packets in an effort to optimize the subscription level in the network. The bursts have an effect of join attempt. For the duration of the bursts, the bandwidth is effectively increased. Therefore Visisano's "sender-initiated probe" is interpreted as being independent of the receiver's feedback as claimed.

Conclusion

All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

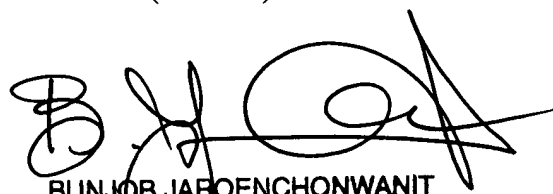
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alina N. Boutah whose telephone number is 571-272-3908. The examiner can normally be reached on Monday-Friday (9:00 am - 5:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SUPERVISORY PATENT EXAMINER